IN THE CLAIMS

1-25 (Canceled).

26. (Currently Amended) The method of Claim 41 [[25]], wherein the exposing step results in a change in a refractive index of the core.

27. (Currently Amended) The method of Claim 41 [[25]], wherein the exposing step results in a change in a refractive index of the cladding.

28. (Currently Amended) The method of Claim 41 [[25]], wherein the exposing step results in a change in a refractive index of the core and the cladding.

29. (Currently Amended) The method of Claim 41 [[25]], wherein the exposing step is performed using a laser beam.

30. (Currently Amended) The method of Claim 41 [[25]], wherein the fiber is doped with germanium.

31-40. (Canceled).

41. (Currently Amended) A method comprising the steps of:

~~performing the steps of Claim 25 to form a first Fabry-Perot sensor in an optical fiber;~~

forming a mask over an optical fiber, the optical fiber having a core surrounded by a cladding, the mask having a single opening;

exposing the opening to light propagating outside the optical fiber such that a refractive index of a portion of the fiber corresponding to the opening is changed to form a Fabry-Perot cavity sensor, whereby light propagating in the optical fiber after the Fabry-Perot cavity sensor is formed is reflected at a first end and at a second end of the portion and propagates backward along the optical fiber, light reflected at the first end of the portion interfering with light reflected

from the second end of the portion such that changes in a length of the portion result in observable changes in an amplitude of such reflected light;

repeating the forming and exposing steps ~~of Claim 25~~ at least once such that a plurality of Fabry-Perot cavity sensors are formed in the optical fiber; the plurality of sensors being spaced apart;

launching an optical pulse into the optical fiber, ~~the optical fiber having a plurality of optical sensors formed therein,~~ the pulse having a duration less than a time required to travel a smallest distance between the two most closely spaced sensors; and

measuring amplitudes of backward-propagating reflection peaks in the fiber at a plurality of times, each of the times corresponding to a location of one of the plurality of ~~optical~~ sensors.

42. (Canceled).

43. (Previously Presented) The method of Claim 41, wherein the Fabry-Perot cavity sensors are designed such that a cavity length varies only over a quasi-linear range of a half fringe under conditions to which the Fabry-Perot cavity sensors are exposed.

44. (New) The method of Claim 41, further comprising the steps of:

measuring an amplitude of background noise in the fiber at a time close to each of the reflection peaks; and

calculating a ratio of each reflection peak amplitude to a corresponding amplitude of background noise.